What is claimed is:

SUB B1

1. An ink-jet recording head comprising at least one piezoelectric block (A) having an ink pressure chamber communicating with a nozzle for ejecting ink to be supplied from an ink introducing portion, a partition wall serving as a driving portion including a piezoelectric element and at least two electrodes for driving said piezoelectric element, a pressure buffer chamber, and a fixed wall,

wherein piezoelectric block (A) is configured such that said ink pressure chamber, said partition wall serving as the driving portion and said pressure buffer chamber are arranged in this order in the same direction, and

said fixed wall is disposed adjacent to said ink pressure chamber and/or said pressure buffer chamber in reference to said the same direction.

2. The ink-jet recording head as set forth in claim 1, wherein said fixed wall is disposed adjacent to at least said ink pressure chamber in reference to said the same direction.

SUB B2

3. An ink-jet recording head comprising at least one piezoelectric block (B) having an ink pressure chamber communicating with nozzles for ejecting ink to be supplied from an ink introducing portion, partition walls serving as driving portions including piezoelectric elements and at least two electrodes for driving said piezoelectric elements, a pressure buffer chamber, and fixed walls,

wherein said piezoelectric block (B) is configured such that a first ink pressure chamber, a first partition wall

serving as a driving portion, said pressure buffer chamber, a second partition wall serving as a driving portion, and a second ink pressure chamber are arranged in the same direction,

said fixed walls being disposed adjacent to said first ink pressure chamber and said second ink pressure chamber in reference to said the same direction.

4. An ink-jet recording head comprising:

at least one piezoelectric block (A) having an ink pressure chamber (A) communicating with a nozzle (A) for ejecting ink to be supplied from an ink introducing portion, a partition wall (A) serving as a driving portion including a piezoelectric element (A) and at least two electrodes (A) for driving said piezoelectric element (A), a pressure buffer chamber (A), and a fixed wall (A); and

at least one piezoelectric block (B) having ink pressure chambers (B) communicating with nozzles (B) for ejecting ink to be supplied from an ink introducing portion, partition walls (B) serving as driving portions including piezoelectric elements (B) and at least two electrodes (B) for driving said piezoelectric elements (B), a pressure buffer chamber (B), and fixed walls (B),

wherein said piezoelectric block (A) is configured such that said ink pressure chamber (A), said partition wall (A) serving as the driving portion and said pressure buffer chamber (A) are arranged in this order in the same direction,

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said fixed wall (A) is disposed adjacent to said ink pressure chamber (A) and/or said pressure buffer chamber (A) in reference to said the same direction,

said piezoelectric block (B) is configured such that a first ink pressure chamber (B), a first partition wall (B) serving as a driving portion, said pressure buffer chamber (B), a second partition wall (B) serving as a driving portion, and a second ink pressure chamber (B) are arranged in the same direction, and

said fixed walls (B) is disposed adjacent to said first ink pressure chamber (B) and said second ink pressure chamber (B) in reference to said the same direction.

5. The ink-jet recording head as set forth in any one of claims 1 to 4, wherein said piezoelectric blocks (A) and (B) are block moldings molded integrally by baking powder including a piezoelectric material.

6. The ink-jet recording head as set forth in claim 5, wherein said block molding is molded by baking a lamination obtained by laminating sheets made of the powder and a binder.

SUB A1

7. The ink-jet recording head as set forth in any one of claims 1 to 6, wherein said piezoelectric blocks (A) and/or (B) are repeatedly arranged in the same direction as the arranging direction of said ink pressure chamber and said pressure buffer chamber, or in a direction perpendicular to the arranging direction of said ink pressure chamber and said pressure buffer chamber.

8. The ink-jet recording head as set forth in any one of claims 1 to 6, wherein said piezoelectric blocks (A) and/or

(B) are repeatedly arranged in the same direction as the arranging direction of said ink pressure chamber and said pressure buffer chamber, and in a direction perpendicular to the arranging direction of said ink pressure chamber and said pressure buffer chamber.

9. The ink-jet recording head as set forth in any one of claims 1 to 8, wherein at least two of said piezoelectric blocks (A) and/or (B) are integrated with each other by baking.

10. The ink-jet recording head as set forth in claims 7 or 8, wherein at least two of said piezoelectric blocks (A) and/or (B) are welded to each other via an adhesive.

11. The ink-jet recording head as set forth in claims 7 or 8, wherein said piezoelectric blocks (A) and/or (B) are arranged on a predetermined base member without being welded to each other.

12. The ink-jet recording head as set forth in claims 7 or 8, wherein a piezoelectric block assembly composed of at least two of said piezoelectric blocks (A) and/or (B) integrated with each other by baking is welded to another assembly composed of at least two of said piezoelectric blocks (A) and/or (B) integrated with each other by baking or to said piezoelectric blocks (A) and/or (B) via an adhesive.

13. The ink-jet recording head as set forth in claims 7 or 8, wherein an assembly composed of at least two of said piezoelectric blocks (A) and/or (B) integrated each other by baking is arranged on a predetermined base member without

A1 Cont.

being welded to another assembly composed of at least two of said piezoelectric blocks (A) and/or (B) integrated with each other by baking or to said piezoelectric blocks (A) and/or (B).

14. The ink-jet recording head as set forth in any one of claims 1 to 4, wherein the length of said fixed wall in the same direction as the arranging direction of said ink pressure chamber and said pressure buffer chamber is greater than that of said partition wall serving as the driving portion in the same direction as the arranging direction.

15. The ink-jet recording head as set forth in any one of claims 1 to 4, wherein said fixed wall includes a portion firmer than said partition wall serving as the driving portion.

16. The ink-jet recording head as set forth in any one of claims 1 to 4, wherein said fixed wall includes a hollow portion.

SUB A2

17. The ink-jet recording head as set forth in any one of claims 1 to 16, wherein said pressure buffer chamber is closed on a side on which said nozzle communicating with said ink pressure chamber is opened.

18. The ink-jet recording head as set forth in any one of claims 1 to 17, wherein said pressure buffer chamber communicates with an air inlet/outlet path connected to the outside.

19. The ink-jet recording head as set forth in any one of claims 1 to 18, wherein said electrode has a mesh-like structure.

20. The ink-jet recording head as set forth in any one of claims 1 to 19, wherein the number of said electrodes are two.

21. The ink-jet recording head as set forth in claim 20, wherein one of said electrodes is exposed to said ink pressure chamber or said pressure buffer chamber.

22. The ink-jet recording head as set forth in claim 21, wherein one of said electrodes is exposed to said pressure buffer chamber.

23. The ink-jet recording head as set forth in claim 20, wherein both of said electrodes are exposed to said ink pressure chamber and said pressure buffer chamber.

24. The ink-jet recording head as set forth in claim 20, wherein both of said electrodes are embedded inside said partition wall serving as the driving portion.

25. The ink-jet recording head as set forth in claim 24, wherein one of said electrodes is disposed apart from said ink pressure chamber with a predetermined distance (L1), and the other electrode is disposed apart from said pressure buffer chamber with a predetermined distance (L2),

the distances (L1) and (L2) satisfying the relationship of $L1 \neq L2$.

26. The ink-jet recording head as set forth in claim 24, wherein one of said electrodes is disposed apart from said ink pressure chamber with a predetermined distance (L1), and the other electrode is disposed apart from said pressure buffer chamber with a predetermined distance (L2),

the distances (L1) and (L2) satisfying the relationship of L1 > L2.

27. The ink-jet recording head as set forth in any one of claims 20 to 26, wherein one or more electrodes are further interposed between said two electrodes.

28. The ink-jet recording head as set forth in claim 21 or 23, wherein said electrode disposed at the surface exposed to said ink pressure chamber of said partition wall serving as the driving portion is grounded.

29. The ink-jet recording head as set forth in any one of claims 1 to 28, wherein a portion at which said electrodes disposed at said partition wall serving as the driving portion face each other is included in a portion at which said ink pressure chamber and said pressure buffer chamber face each other.

30. The ink-jet recording head as set forth in claim 29, wherein the length of one of said electrodes in a direction perpendicular to the arranging direction of said ink pressure chamber and said pressure buffer chamber is different from the length of the other electrode adjacent to said above electrode in the same direction as the above direction.

31. The ink-jet recording head as set forth in claim 30, wherein one of said electrodes is included in a portion at which said ink pressure chamber and said pressure buffer chamber face each other, and the other electrode adjacent to said above electrode divides the portion at which said

ink pressure chamber and said pressure buffer chamber face each other.

32. The ink-jet recording head as set forth in claim 31, wherein said adjacent electrode for dividing is thicker than said included electrode.

SUB A4

33. The ink-jet recording head as set forth in any one of claims 1 to 32, wherein the length of said ink pressure chamber in a direction perpendicular to the arranging direction is different from the length of said pressure buffer chamber in the same direction as the above direction.

34. The ink-jet recording head as set forth in any one of claims 1 to 33, wherein the distance between said nozzles communicating with said ink pressure chambers of said piezoelectric blocks (A) and/or (B) is constant in the same direction.

35. The ink-jet recording head as set forth in claim 8, wherein m nozzle alignments, in which said nozzles communicating with said ink pressure chambers are aligned in the arbitrary number in the same direction as the moving direction of said ink-jet recording head in an ink-jet printer, are arranged in a direction perpendicular to the moving direction,

said nozzles are aligned without any overlapping in the direction perpendicular to the moving direction, and

$X \leq P/m$

wherein X represents a deviation between said nozzles nearest each other out of said nozzles in reference to the

moving direction and P represents a distance between said nozzles belonging to said same nozzle alignment.

36. The ink-jet recording head as set forth in claim 35, wherein the distance between said adjacent nozzle alignments in the direction perpendicular to the moving direction is a multiple of X.

37. The ink-jet recording head as set forth in claim 35, wherein the moving direction accords with the arranging direction of said ink pressure chamber and said pressure buffer chamber.

38. The ink-jet recording head as set forth in claim 35, wherein the moving direction does not accord with the arranging direction of said ink pressure chamber and said pressure buffer chamber.

add B3

add C11